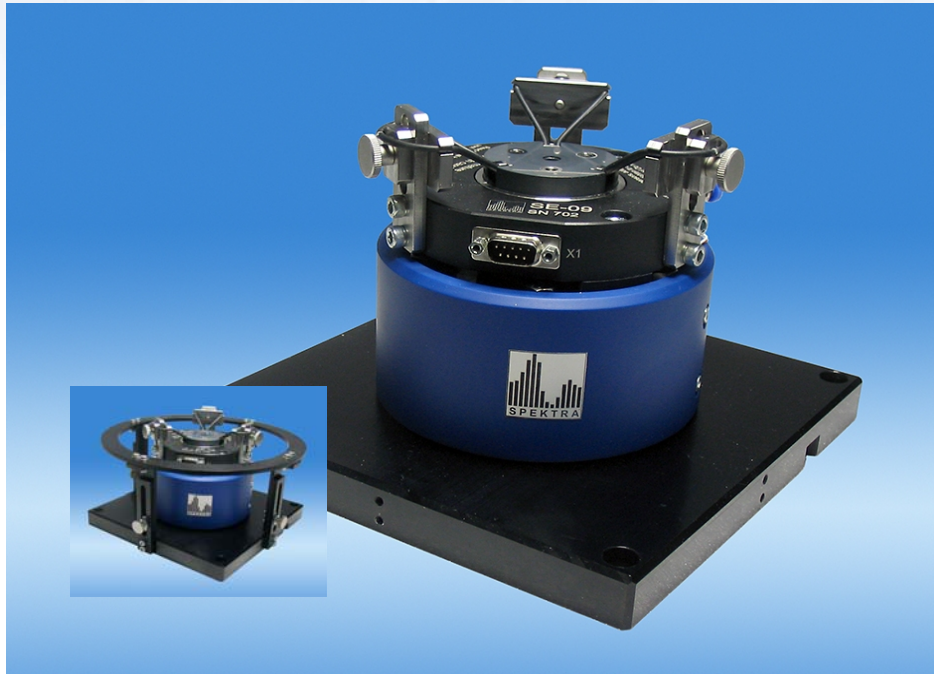


# SE-09

## Calibration Vibration Exciter for High Frequencies



### Application

- **Primary calibration** of vibration sensors according to **ISO 16063-11**
- **Secondary calibration** of vibration sensors, calibrators and meters with very high quality and performance according to **ISO 16063-21** (comparison calibration)
- Calibration of **reference standard transducers**
- **Resonance frequency search up to 50 kHz**
- Testing of **micro-mechanic sensors (MEMS)**

### Range of use

- **Certified calibration laboratories** with outstanding quality demands
- Departments of measuring instrument verification in **research and industry**
- **Quality assurance** in sensor manufacturing
- **National Metrological Institutes** as highest metrological authorities (in combination with CS18P)

### Description

The SE-09 is a high-tech product, which is the result of extensive theoretical and practical examinations. It is designed specially for the usage in calibration laboratories and in national institutes. A significant result of this examinations is the appearance of the first axial head resonance above 52 kHz. In combination with the used internal reference standard accelerometer a true usable frequency range of 50 kHz appears.

### Features

- **Air bearing** with ceramic armature
- **Very high first axial head resonance frequency** (> 52 kHz)
- **Very high acceleration amplitudes** (up to 40  $g_n$ )
- **Insignificant Transverse motions** according to ISO 16063-21
- Usable frequency range up to **50 kHz**
- Usable displacement 8 mm (pk-pk)
- Maximum mass of DUT **350 gram**
- Extreme wear resistant **ceramic armature** with defined small electrical conductivity (**ESD characteristics**)
- **Internal high frequency reference accelerometer** (ICP<sup>®</sup>-type, sensitivity about 10 mV /  $g_n$ )

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The drive of the shaker is electro dynamic. All components of the drive are designed for high performance. With acceptable temperature rise of the shaker, high acceleration amplitudes can be created.

Low transverse motions on a defined small mechanical base noise can be reached because of specially designed air bearings. Because of the application of top performance materials (armature made from technical ceramic, drive with high-performance magnets) and the optimized form of construction the shaker has a very high power density. The result is a lightweight shaker with small dimensions.

In combination with a reference laser vibrometer – instead of the internal reference accelerometer – the shaker can be used for class 1 primary vibration calibration systems like the CS18P HF

### Components

- Internal reference accelerometer, HF- quartz shear ICP<sup>®</sup> accelerometer
- Basis mass
- Cable holder

### Technical Data

Vibration Exciter		
Max. Force Sine peak <sup>1) 2)</sup>	100 N	
Frequency Range	5 Hz ... 50,000 Hz	
Resonance Frequency	> 52 kHz	
Max. Stroke <sup>1) 2)</sup>	8 mm	
Max. Velocity Sine peak	0.5 m/s	
Max. Acceleration <sup>1) 2)</sup>	40 g <sub>n</sub>	
Max. Pay Load	350 Gramm	
Transverse Motion	5 Hz...10 kHz, < 5 %; 10 kHz...50 kHz < 10 %	
Max. Current Input	9 A rms	
Air Pressure Required	1 bar ... 4 bar; typ. 2 bar	
Total Weight	ca. 7 kg	
Working Temperature Range	23°C (± 2 K)	73.4°F (± 2 K)
Storage Temperature Range	-25°C bis +55°C	-13°F ... +131°F
Data of the Internal Reference Accelerometer <sup>1) 3)</sup>		
Sensitivity (± 10 %)	10 mV / g <sub>n</sub>	
Frequency Range	2 Hz ... 50 kHz	
Amplitude Linearity	< 0,25%	
Resonance Frequency	ca. 70 kHz	
Excitation Voltage	18 V <sub>DC</sub> ... 30 V <sub>DC</sub>	
Constant Current Excitation	2 mA ... 20 mA	
Output Bias Voltage	8 V <sub>DC</sub> ... 12 V <sub>DC</sub>	
Discharge Time Constant	0.5 sec ... 2.0 sec	
Settling Time (Within 10% of Bias)	< 5 sec	
Connectors		
Sensor	Cable 2 m with BNC plug 10-32 fixed connected	
Shaker	Cable 3 m with Speakon <sup>®</sup> plug	

<sup>1)</sup> Interval mode of operation

<sup>2)</sup> Recommended operation range; mechanical stop at 10 mm

<sup>3)</sup> All specifications are at room temperature unless otherwise specified.

Recommended Power Amplifier: **PA 14-500**

Recommended optional extra: Remote shut-down

All data are subject to change without notice

December 2010